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Relevance scale **1** [Digital filters in adaptive time-stepping](#) Gustaf SöderlindMarch 2003 **ACM Transactions on Mathematical Software (TOMS)**, Volume 29 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(529.48 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Adaptive time-stepping based on linear digital control theory has several advantages: the algorithms can be analyzed in terms of stability and adaptivity, and they can be designed to produce smoother stepsize sequences resulting in significantly improved regularity and computational stability. Here, we extend this approach by viewing the closed-loop transfer map H : $\log \phi$ $\mapsto \log h$ as a digital filter, processing the signal $\log \phi$ (the principal error func ...

Keywords: Adaptivity, algorithm analysis, control theory, digital filters, error control, mathematical software, stepsize control

**2** [A microprogrammable dual processor based fast digital filter](#) Prakash Agarwal, Roland PriemerJanuary 1980 **Proceedings of the ACM 1980 annual conference**

Publisher: ACM Press

Full text available:  [pdf\(532.21 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A programmable digital signal processing system is proposed in this paper. The system utilizes a 16 bit microprocessor for user interaction and a bit slice microprocessor for executing the filtering algorithm.

**3** [Special-purpose ternary computer for digital filtering](#)

Tatsuo Higuchi, Hisamitsu Hoshi

January 1978 **Proceedings of the eighth international symposium on Multiple-valued logic**Full text available:  [pdf\(554.41 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Real-time digital filters which have several advantages over analog filters are known as a very important digital-signal processor. This paper provides a summary of the design features of a special-purpose microprogram-controlled ternary computer suited for realizing the real-time digital filters by programming. Many advantages of the ternary

number system are effectively employed for the ternary computer in hardware and software. Particular emphasis is placed on the use of the ternary adder ...

4 Fast Hankel Transforms Using Related and Lagged Convolutions

 Walter L. Anderson
December 1982 **ACM Transactions on Mathematical Software (TOMS)**, Volume 8 Issue 4

Publisher: ACM Press

Full text available:  pdf(1.67 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



5 Practical experiences: A case study of hardware and software synthesis in ForSyDe

 Zhonghai Lu, Ingo Sander, Axel Jantsch
October 2002 **Proceedings of the 15th international symposium on System Synthesis**

Publisher: ACM Press

Full text available:  pdf(99.18 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)



ForSyDe (FORmal SYstem DEsign) is a methodology which addresses the design of SoC applications which may contain control as well as data flow dominated parts. Starting with a formal system specification, which captures the functionality of the system, it provides refinement methods inside the functional domain to transform the abstract specification into an efficient implementation model which serves as a starting point for synthesis into hardware and software. In this paper we illustrate with a ...

Keywords: design methodology, hardware synthesis, software synthesis, system design

6 Listening to FM radio in software, step by step

Eric Blossom
September 2004 **Linux Journal**, Volume 2004 Issue 125

Publisher: Specialized Systems Consultants, Inc.

Full text available:  html(18.64 KB) Additional Information: [full citation](#), [abstract](#)



Software radio is a really big important technology. Don't take our word for it—try this simple project.

7 Poster session: Implementation of digital fixed-point approximations to continuous-time IIR filters

 J. E. Carletta, R. J. Veillette, F. W. Krach, Z. Fang
February 2003 **Proceedings of the 2003 ACM/SIGDA eleventh international symposium on Field programmable gate arrays**

Publisher: ACM Press

Full text available:  pdf(187.05 KB) Additional Information: [full citation](#), [abstract](#)



An analytical framework for the implementation of digital infinite impulse response filters in fixed-point hardware on FPGAs is presented. It presumes that a continuous-time filter with the desired response is given. Within the framework, the constant coefficient bit widths are determined by accounting for the sensitivity of the filter's pole and zero locations with respect to the coefficient perturbations. The internal signal bit widths are determined by calculating theoretical bounds on the ra ...

8 TETRA radio performance evaluated via the software package TETRASIM

Armando Annunziato, Davide Sorbara
March 2000 **Mobile Networks and Applications**, Volume 5 Issue 1

Publisher: Kluwer Academic Publishers



Full text available:  [pdf\(429.08 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

TETRA (TERrestrial Trunked RAdio) is a digital mobile radio standard for voice and data transmission. It aims at satisfying the growing request of applications and facilities coming from professional users and emergency services. The system has been standardized by ETSI (European Telecommunications Standards Institute) and is provided with an European harmonized frequency band. The first TETRA networks appeared on the market in 1997. This paper reports TETRA radio performance evaluated via ...

9 Harmonic scheduling of linear recurrences for digital filter design 

Haigeng Wang, Nikil Dutt, Alexandru Nicolau

November 1992 **Proceedings of the conference on European design automation**

Publisher: IEEE Computer Society Press

Full text available:  [pdf\(702.71 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

10 Using codesign techniques to support analog functionality 

 Francis G. Wolff, Michael J. Krieser, Dan J. Weyer, Chris A. Papachristou
March 1999 **Proceedings of the seventh international workshop on Hardware/software codesign**

Publisher: ACM Press

Full text available:  [pdf\(433.76 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: analog, design methodologies, hardware/software codesign

11 A programmable power-efficient decimation filter for software radios 

 Emad N. Farag, Ran-Hong Yan, Mohamed I. Elmasry
August 1997 **Proceedings of the 1997 international symposium on Low power electronics and design**

Publisher: ACM Press

Full text available:  [pdf\(485.86 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#)

12 Trustworthy 100-year digital objects: durable encoding for when it's too late to ask 

 H. M. Gladney, R. A. Lorie
July 2005 **ACM Transactions on Information Systems (TOIS)**, Volume 23 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(1.04 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

How can an author store digital information so that it will be reliably intelligible, even years later when he or she is no longer available to answer questions? Methods that *might* work are not good enough; what is preserved today should be reliably intelligible whenever someone wants it. Prior proposals fail because they generally confound saved data with irrelevant details of today's information technology---details that are difficult to define, extract, and save completely and accurate ...

Keywords: Long-term digital preservation, encoding

13

Computer-aided digital autopilot design & analysis: Methodology, implementation and verification 

W. V. Albanes, J. B. Meadows

December 1979 **Proceedings of the 11th conference on Winter simulation - Volume 1**

Publisher: IEEE Press

Full text available:  [pdf\(663.81 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper details the design methodology for a missile digital autopilot using a digitization approach, and a discrete domain design approach. These two designs rely heavily on computerized system analysis tools in the frequency and time domains.

Further, three complex frequency planes are available to the designer, therefore, relative merits of each will be discussed. This paper will also detail the implementation of the autopilot on the missile microcomputer, a six degree of f ...

14 Reduction of latency and resource usage in bit-level pipelined data paths for FPGAs 

 P. Kollig, B. M. Al-Hashimi

February 1999 **Proceedings of the 1999 ACM/SIGDA seventh international symposium on Field programmable gate arrays**

Publisher: ACM Press

Full text available:  [pdf\(1.36 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: FPGA, bit-level pipelined, circuit latency, recursive algorithms

15 Report of the digital systems education committee 

 James T. Cain

September 1975 **ACM SIGCSE Bulletin**, Volume 7 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(284.84 KB\)](#) Additional Information: [full citation](#), [citations](#), [index terms](#)

16 Process integration: Writing as software development: making meaning before, after, and of the code 

Scott Lockhart, Rahul Mehrotra

September 2000 **Proceedings of IEEE professional communication society international professional communication conference and Proceedings of the 18th annual ACM international conference on Computer documentation: technology & teamwork**

Publisher: IEEE Educational Activities Department

Full text available:  [pdf\(745.78 KB\)](#) Additional Information: [full citation](#), [abstract](#)

This paper presents some thoughts on redefining a technical writer's role in the software development process. It outlines ways in which writers can use their writing skills to collaborate with and add value to the HCI (human computer interaction) and software architecture functions. It also points to areas that writers need to explore further to discover the ways in which they can contribute meaningfully to information, and therefore product, development throughout the life cycle of the software ...

17 A sigma-delta modulation based BIST scheme for mixed-signal circuits 

 Jiun-Lang Huang, Kwang-Ting Cheng

January 2000 **Proceedings of the 2000 conference on Asia South Pacific design automation**

Publisher: ACM Press

Full text available:  [pdf\(117.31 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#)

18 Poster session: FPGAs in critical hardware/software systems Adrian J. Hilton J. Adrian J. Hilton, Gemma Townson, Jon G. HallFebruary 2003 **Proceedings of the 2003 ACM/SIGDA eleventh international symposium on Field programmable gate arrays****Publisher:** ACM PressFull text available:  [pdf\(187.05 KB\)](#) Additional Information: [full citation](#), [abstract](#)

FPGAs are being used in increasingly complex roles in critical systems, interacting with conventional critical software. Established safety standards require rigorous justification of safety and correctness of the conventional software in such systems. Newer standards now make similar requirements for safety-related electronic hardware, such as FPGAs, in these systems. In this paper we examine the current state-of-the-art in programming FPGAs, and their use in conventional (low-criticality) hard ...

19 Poster session: Design of a fingerprint system using a hardware/software environment Lee Vanderlei Bonato, Rolf Fredi Molz, João Carlos Furtado, Marcos Flores Ferrão, Fernando G. MoraesFebruary 2003 **Proceedings of the 2003 ACM/SIGDA eleventh international symposium on Field programmable gate arrays****Publisher:** ACM PressFull text available:  [pdf\(187.05 KB\)](#) Additional Information: [full citation](#), [abstract](#)

Processing system of fingerprint are CPU time intensive, being normally implemented in software. This paper present a new algorithm for fingerprint features localization, that can be easily implemented in hardware (system-on-a-chip, FPGA). This algorithm is composed by 3 stages, first stage read a fingerprint image (255x255pixels, ash tones) and apply a Gaussian Filter, after this, apply a absolute difference mask (ADM) for detector the edges in the image filtered and the last stage look for fin ...

20 Poster session: Lattice adaptive filter implementation for FPGA Zdenek Pohl, Rudolf Matoušek, Jirí Kadlec, Milan Tichý, Miroslav LíckoFebruary 2003 **Proceedings of the 2003 ACM/SIGDA eleventh international symposium on Field programmable gate arrays****Publisher:** ACM PressFull text available:  [pdf\(187.05 KB\)](#) Additional Information: [full citation](#), [abstract](#)

Our poster introduces an innovative RLS Lattice filter implementation for FPGAs. The signal processing applications typically require wide numeric range, and that poses a problem when using an FPGA implementation. Our approach is based on arithmetic using logarithmic numeric representation (LNS). The test application - an adaptive noise canceller - has been optimized for the Xilinx Virtex devices. It consumes roughly 70% of all logic resources of the XCV800 device and all block memory cells. The ...

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1 Special-purpose ternary computer for digital filtering

Tatsuo Higuchi, Hisamitsu Hoshi

January 1978 **Proceedings of the eighth international symposium on Multiple-valued logic**

Full text available: [pdf\(554.41 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Real-time digital filters which have several advantages over analog filters are known as a very important digital-signal processor. This paper provides a summary of the design features of a special-purpose microprogram-controlled ternary computer suited for realizing the real-time digital filters by programming. Many advantages of the ternary number system are effectively employed for the ternary computer in hardware and software. Particular emphasis is placed on the use of the ternary adder ...


2 Digital filter synthesis based on minimal signed digit representation


In-Cheol Park, Hyeong-Ju Kang

June 2001 **Proceedings of the 38th conference on Design automation**
Publisher: ACM Press

Full text available: [pdf\(226.04 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

As the complexity of digital filters is dominated by the number of multiplications, many works have focused on minimizing the complexity of multiplier blocks that compute the constant coefficient multiplications required in filters. The complexity of multiplier blocks can be significantly reduced by using an efficient number system. Although the canonical signed digit representation is commonly used as it guarantees the minimal number of additions for a constant multiplication, we propose i ...


3 The Synthesis of Recursive Digital Filters


Howard Holtz, C. T. Leondes

April 1966 **Journal of the ACM (JACM)**, Volume 13 Issue 2

Publisher: ACM Press

Full text available: [pdf\(1.10 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The circumstances and methods of the synthesis of linear digital recursive filters which are both stable and physically realizable are described. It is shown that any amplitude frequency transfer function expressible as an even trigonometric rational polynomial can be synthesized by a real stable linear digital recursive filter. The degree of the corresponding difference equation is twice the degree of the denominator of the rational trigonometric polynomial. A class of even ratio ...

4 A microprogrammable dual processor based fast digital filter Prakash Agarwal, Roland PriemerJanuary 1980 **Proceedings of the ACM 1980 annual conference****Publisher:** ACM PressFull text available:  [pdf\(532.21 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A programmable digital signal processing system is proposed in this paper. The system utilizes a 16 bit microprocessor for user interaction and a bit slice microprocessor for executing the filtering algorithm.

5 Digital filters in adaptive time-stepping Gustaf SöderlindMarch 2003 **ACM Transactions on Mathematical Software (TOMS)**, Volume 29 Issue 1**Publisher:** ACM PressFull text available:  [pdf\(529.48 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Adaptive time-stepping based on linear digital control theory has several advantages: the algorithms can be analyzed in terms of stability and adaptivity, and they can be designed to produce smoother stepsize sequences resulting in significantly improved regularity and computational stability. Here, we extend this approach by viewing the closed-loop transfer map $H(\log h)$ as a digital filter, processing the signal $\log h$ (the principal error func ...

Keywords: Adaptivity, algorithm analysis, control theory, digital filters, error control, mathematical software, stepsize control

6 Session 38: communication-driven synthesis: Optimization of area under a delay constraint in digital filter synthesis using SAT-based integer linear programming

Levent Aksoy, Eduardo Costa, Paulo Flores, Jose Monteiro

July 2006 **Proceedings of the 43rd annual conference on Design automation DAC '06****Publisher:** ACM PressFull text available:  [pdf\(784.58 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we propose an exact algorithm for the problem of area optimization under a delay constraint in the synthesis of multiplierless FIR filters. To the best of our knowledge, the method presented in this paper is the only exact algorithm designed for this problem. We present the results of the algorithm on real-sized filter instances and compare with an improved version of a recently proposed exact algorithm designed for the minimization of area. We show that in many cases delay can be ...

Keywords: area optimization, delay optimization, multiple constant multiplication, multiplierless digital filter design

7 Frequency-domain compatibility in digital filter BIST Laurence Goodby, Alex OrailogluJune 1997 **Proceedings of the 34th annual conference on Design automation DAC '97****Publisher:** ACM PressFull text available:  [pdf\(255.07 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#) [Publisher Site](#)

We examine frequency-domain issues in the design and selection of on-chip test generators for built-in self-test (BIST) of high-performance digital filters. Test-

generator/circuit compatibility is identified as a significant factor in testing large filters. A fault-injection experiment is used to show that when an incompatible test generator is used, high fault coverage (over 99%) does not guarantee that all serious faults will be detected. The frequency-domain characteristics of some basic test genera ...

8 Calculation of B-spline surfaces using digital filters



Stuart C. Schaffner

December 1981 **ACM SIGGRAPH Computer Graphics**, Volume 15 Issue 4

Publisher: ACM Press

Full text available: [pdf\(569.46 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

A (potentially large) $M \times N$ grid of B-spline control points is an attractive database for the representation of a curved surface. The properties of B-splines allow precise control over surface smoothness and ensure that local changes to the surface will require only local changes to the database. One difficulty in applying this technique is that the grid of control points does not in general lie on the surface it generates. Given an $M \times N$ grid of points, one would like to be able to generate a B-spl ...

9 On Exponential Digital Filters



Marvin Blum

April 1959 **Journal of the ACM (JACM)**, Volume 6 Issue 2

Publisher: ACM Press

Full text available: [pdf\(623.14 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper derives the weighting sequence of a linear digital filter whose output is an estimate of the predicted values of the derivatives of the input. The input functions considered are arbitrary linear combinations of $n + 1$ known functions, plus a random stationary signal and a random stationary noise component. The filter differs from previously considered minimum variance optimum filters in that the primary consideration here is the computational ease with which one c ...

10 Digital detection of analog parametric faults in SC filters



Ramesh Harjani, Bapiraju Vinnakota

June 1999 **Proceedings of the 36th ACM/IEEE conference on Design automation**

Publisher: ACM Press

Full text available: [pdf\(110.43 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

11 Digital filter design and stability of a predictor-corrector integration

Sherman H. Wu

January 1980 **Proceedings of the 13th annual symposium on Simulation**

Publisher: IEEE Press

Full text available: [pdf\(369.46 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A new method of designing digital filters using numerical integration technique and Z-transform theory is developed. In addition the stability boundary of a predictor-corrector integration routine is established by using systems theory.

12 A digital method for testing embedded switched capacitor filters

M. Robson, G. Russell

September 1996 **Proceedings of the conference on European design automation**

Publisher: IEEE Computer Society Press

Full text available: [pdf\(82.00 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

13 Session 11: A low-power digital matched filter for spread-spectrum systems

 Shoji Goto, Takashi Yamada, Norihisa Takayama, Yoshifumi Matsushita, Yasoo Harada, Hiroto Yasuura

August 2002 **Proceedings of the 2002 international symposium on Low power electronics and design**

Publisher: ACM Press

Full text available:  [pdf\(338.50 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A Digital Matched Filter (DMF) is an essential device for Direct-Sequence Spread-Spectrum (DS-SS) communication systems. Reducing the power consumption of a DMF is especially critical for battery-powered terminals. The reception registers and the correlation-calculating unit dissipate the majority of the power in a DMF. In this paper we discuss this problem and propose a low-power architectural approach to a DMF. The total switching activity factor and the switched capacitance are reduced. As a ...

Keywords: CDMA, VLSI, low power, matched filter, spread-spectrum

14 A rapid method for digital filtering

 John R. B. Whittlesey
September 1964 **Communications of the ACM**, Volume 7 Issue 9

Publisher: ACM Press

Full text available:  [pdf\(583.86 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Since much of the computer time spent in time-series analysis is used for multiplications, a minimum multiplication method was devised for digital filtering, with the expectation that it would be useful in the online, real-time analysis of biological data. The filters are constructed from a succession of readily analyzable components in a manner that facilitates cascading. The repertoire of frequency response curves includes relatively good low-pass and band-pass designs. Programs are avail ...

15 MRPF: An Architectural Transformation for Synthesis of High-Performance and Low-Power Digital Filters

Hunsoo Choo, Khurram Muhammad, Kaushik Roy

March 2003 **Proceedings of the conference on Design, Automation and Test in Europe - Volume 1 DATE '03**

Publisher: IEEE Computer Society

Full text available:  [pdf\(175.70 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

 [Publisher Site](#)

We present a graph theoretical methodology that reduces the implementation complexity of a vector multiplied by a scalar. The proposed approach is called MRP (minimally redundant parallel) optimization and is presented in FIR filtering framework to obtain a low-complexity multiplier-less implementation. The key idea is to expand the design space using shift inclusive differential coefficients together with computation reordering using a graph theoretic approach to obtain maximal computation shar ...

16 Harmonic scheduling of linear recurrences for digital filter design

Haigeng Wang, Nikil Dutt, Alexandru Nicolau

November 1992 **Proceedings of the conference on European design automation**

Publisher: IEEE Computer Society Press

Full text available:  [pdf\(702.71 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

17 [Poster session: Implementation of digital fixed-point approximations to continuous-time IIR filters](#) 

J. E. Carletta, R. J. Veillette, F. W. Krach, Z. Fang
 February 2003 **Proceedings of the 2003 ACM/SIGDA eleventh international symposium on Field programmable gate arrays**

Publisher: ACM Press

Full text available:  [pdf\(187.05 KB\)](#) Additional Information: [full citation](#), [abstract](#)

An analytical framework for the implementation of digital infinite impulse response filters in fixed-point hardware on FPGAs is presented. It presumes that a continuous-time filter with the desired response is given. Within the framework, the constant coefficient bit widths are determined by accounting for the sensitivity of the filter's pole and zero locations with respect to the coefficient perturbations. The internal signal bit widths are determined by calculating theoretical bounds on the ra ...

18 [250–600 Mhz 12b digital filters in 0.8–0.25&mgr;m bulk and SOI CMOS technologies](#) 

L. Thon, G. Shahidi, W. Rausch, G. Coleman, D. Tang, D. Schepis, R. Schulz, F. Assadaraghi
 August 1996 **Proceedings of the 1996 international symposium on Low power electronics and design**

Publisher: IEEE Press

Full text available:  [pdf\(2.09 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

19 [Multimedia and visualization \(MV\): Modelling and filtering of MPEG-7-compliant meta-data for digital video](#) 

Harry Agius, Marios C. Angelides

March 2004 **Proceedings of the 2004 ACM symposium on Applied computing**

Publisher: ACM Press

Full text available:  [pdf\(235.90 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The recent MPEG-7 standard specifies a semi-structured meta-data format for open interoperability of multimedia. However, the standard refrains from specifying how the meta-data is to be used or how meta-data inappropriate to user requirements may be filtered out. Consequently, we propose COSMOS-7, which produces structured MPEG-7-compliant meta-data for digital video and enables content-based hybrid filtering of that meta-data.

Keywords: MPEG-7, filtering, meta-data, modelling, multimedia

20 [Test quality and fault risk in digital filter datagraph BIST](#) 

Laurence Goodby, Alex Orailoglu

January 2000 **Proceedings of the conference on Design, automation and test in Europe**

Publisher: ACM Press

Full text available:  [pdf\(159.67 KB\)](#)

Additional Information: [full citation](#), [references](#), [index terms](#)

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S9	1270	S8 and @ad < "20030804"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 12:02

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S10	1049	S9 and input and output	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 12:03
S11	543	(math mathematical) adj3 filter\$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 12:03
S12	9	S11 with input with output	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 12:06
S13	55	S11 same input same output	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:05
S14	642	(708/300).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:05
S16	534	S14 and @ad < "20030804"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:06
S17	500	S16 and input and output	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:06
S18	235	S16 and input and output and state	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:06

EAST Search History

S19	84	S16 and input and output and state and feedback	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:25
S20	4994	(discrete) near3 (filter)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:25
S21	14523	(adaptive) near3 (filter)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:26
S22	380	(multirate) near3 (filter)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:26
S23	5	S20 and S21 and S22	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:27
S24	400	S20 and S21	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 13:27
S25	322	S24 and @ad < "20030804"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 14:31
S26	4316	recursive near3 filter\$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 14:32

EAST Search History

S27	3464	recursive adj2 filter\$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 14:31
S28	85	(recursive near3 filter\$1) near2 (software application program\$1 object\$1)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 14:33
S29	78	S28 and @ad < "20030804"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/18 15:43
S30	20873	adapt\$3 adj2 filter\$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:42
S31	0	708/322.ccls	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:43
S32	482	708/322.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:43
S33	2	S32 and (dynamic\$4 near2 type\$1)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:45
S34	1	S33 and fir	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:46

EAST Search History

S35	2	S33 and @ad < "20030804"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:46
S36	462	S32 and @ad < "20030804"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:46
S37	93	S36 and software	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 08:01
S38	87	S37 and filter	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:52
S39	48	S38 and state	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:50
S40	1	S37 and sate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:52
S41	52	S37 and state	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 07:52
S42	0	S32 and (math near lab)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 08:02

EAST Search History

S43	0	S32 and (mathlab)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 08:02
S44	1	S32 and (mathworks)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 08:55
S45	1	S44 and state	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 08:30
S46	0	S44 and state and feeback	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 08:30
S47	1	S44 and state and feedback and recursive	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 08:31
S48	32	(adaptive adj filter\$1) and (mathworks mathlab)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 09:31
S49	18	S48 and @ad < "20030804"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 08:56
S50	5	(adaptive adj filter\$1) and (mathworks mathlab) and class	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/19 09:36

EAST Search History

S51	42	(adaptive adj filter\$1) and (mathworks matlab) and class	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/12/20 11:45
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